



TLEF Project – Final Report

Report Completion Date: (2021/06/01)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	PACER Project (Pharmacy Cases Development for a Simulated Electronic Medical Records Database)		
Principal Investigator:	Tony Seet		
Report Submitted By:	Tony Seet		
Project Initiation Date:	2020/04/01	Project Completion Date:	2021/06/01
Project Type:	<input type="checkbox"/> Large Transformation <input checked="" type="checkbox"/> Small Innovation <input type="checkbox"/> Flexible Learning <input type="checkbox"/> Other: [please specify]		

1.2. Project Focus Areas – Please select all the areas that describe your project.

- Resource development (e.g. learning materials, media)
- Infrastructure development (e.g. management tools, repositories, learning spaces)
- Pedagogies for student learning and/or engagement (e.g. active learning)
- Innovative assessments (e.g. two-stage exams, student peer-assessment)
- Teaching roles and training (e.g. teaching practice development, TA roles)
- Curriculum (e.g. program development/implementation, learning communities)
- Student experience outside the classroom (e.g. wellbeing, social inclusion)
- Experiential and work-integrated learning (e.g. co-op, community service learning)
- Indigenous-focused curricula and ways of knowing
- Diversity and inclusion in teaching and learning contexts
- Open educational resources
- Other: [please specify]



1.3. Final Project Summary

This small TLEF supported the creation of an electronic medical records (EMR) database for students at the UBC Faculty of Pharmaceutical Sciences. This EMR database was used to pilot the PACER project that allowed students in the first three years of our program (PY1-PY3) to receive hands-on training using an academic EMR to provide patient care. Our goal is for students to gain confidence in their ability to identify and gather relevant patient information from an EMR, prioritize this information, and use this information effectively to detect and resolve drug therapy problems. These skills are important for student success during practicums and in clinical practice.

1.4. Team Members – Please fill in the following table and include **students**, undergraduate and/or graduate, who participated in your project.

Name	Title/Affiliation	Responsibilities/Roles
Aileen Mira	BSc(Pharm), ACPR, RPh, Lecturer, Faculty of Pharmaceutical Sciences	Clinical case reviewer and cases instructor
Jane Xia	BSc(Pharm), PharmD, MBA, RPh, Lecturer, Faculty of Pharmaceutical Sciences	Clinical case reviewer
Fong Chan	BSc(Pharm), PharmD, ACPR, RPh, Lecturer, Faculty of Pharmaceutical Sciences	Clinical case reviewer and cases instructor
Ali Reza Ladak	BSc(Pharm), RPh, Lecturer, Faculty of Pharmaceutical Sciences	Research team member
Kayla Fang	BSc(Pharm), ACPR, RPh, Lecturer, Faculty of Pharmaceutical Sciences	Research team member and Office of Experiential Education (OEE) consultant
Julian Lee	BSc(Pharm), ACPR, RPh, Lecturer, Faculty of Pharmaceutical Sciences	Office of Experiential Education (OEE) consultant
Jason Min	BSc(Pharm), RPh, Lecturer, Faculty of Pharmaceutical Sciences	Research team member and academic EHR project manager
Jillian Reardon	BSc(Pharm), PharmD, ACPR, RPh, Pharmacist and Lecturer, Faculty of Pharmaceutical Sciences	Research team member
Jon-Paul Marchand	BSc, BEd, MEd, Director, Educational Technology and Learning Designs, Faculty of Pharmaceutical Sciences	Educational technology consultant
Jenny He	3 rd Year Entry-to-Practice PharmD student, Faculty of Pharmaceutical Sciences	Research team member, student consultant
Katie Bishop	3 rd Year Entry-to-Practice PharmD student, BSc, Faculty of Pharmaceutical Sciences	Student consultant



1.5. **Courses Reached** – Please fill in the following table with **past, current, and future** courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).

Course	Section	Academic Year	Term (Summer/Fall/Winter)
PHRM 111	All	2021W	Winter
PHRM 161	All	2020W	Winter
PHRM 211	All	2021W	Fall
PHRM 212	All	2021W	Winter
PHRM 251	All	2020W	Winter
PHRM 311	All	2020W	Fall
PHRM 312	All	2021W	Winter

2. **OUTPUTS AND/OR PRODUCTS**

2.1. Please **list** project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.

Product(s)/Achievement(s):	Location:
Five EMR clinical cases and facilitator guides	UBC Microsoft OneDrive Account: link available upon request
Pre- and Post- PACER activity student surveys	UBC Qualtrics Account: links available upon request
Data analysis of survey data for cellulitis case (PY1), diabetes case (PY2) and psychiatry case (PY3)	UBC Microsoft OneDrive Account: link available upon request

2.2. **Item(s) Not Met** – Please list intended project outputs and/or products that were not attained and the reason(s) for this.

Item(s) Not Met:	Reason:
Cardiac arrhythmia case (PY2) – clinical case created but not piloted	Due to COVID-19, it was necessary to reduce the number of synchronous sessions to reduce student screen time
Toxicology case (PY3) – clinical case created but not piloted	Due to COVID-19, it was necessary to reduce the number of synchronous sessions to reduce student screen time
EMR documentation	The documentation feature was not available on the academic EMR platform that we were using. It has since received system updates to permit this.



3. PROJECT IMPACT

3.1. Project Impact Areas – *Please select all the areas where your project made an impact.*

- Student learning and knowledge
- Student engagement and attitudes
- Instructional team-teaching practice and satisfaction
- Student wellbeing, social inclusion
- Awareness and capacity around strategic areas (indigenous, equity and diversity)
- Unit operations and processes
- Other: [please specify]

3.2. What were you hoping to change or where were you hoping to see an impact with this project? – *Please describe the intended benefits of the project for students, TAs, instructors and/or community members.*

Students will be exposed to a useful teaching method with practical implications to resolve a patient case using data from an EMR. Students will have opportunities to practice these skills in a safe learning environment. Short- and long-term benefits to students are that they will be able to effectively utilize information from an EMR to provide care to patients during their practicums and future practice.

Currently, instructors evaluate students using cases in which patient information is presented on paper. Due to practical limitations, paper cases often contain patient information that students can easily recognize as critical to the case. In real practice, an EMR contains a much larger quantity of patient information that may or may not be relevant to the patient’s current condition. Short- and long-term benefits to instructors are that instructors are provided with an activity and means of assessment that more accurately represents actual pharmacy practice.

3.3. Were these changes/impacts achieved? How do you know they occurred? – *How did you measure changes/impacts? (e.g. collected survey data, conducted focus groups/interviews, learning analytics, etc.) Describe what was learned from this process. You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

We administered both pre- and post-surveys to students using Qualtrics. Some of the data for PY3 is presented below:

PY3 Quantitative Data

PY3 Survey Question	Pre (n=45) % agreed or strongly agreed	Post (n=26) % agreed or strongly agreed
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58% had no prior experience with an EMR		
“I am confident I can navigate an EMR”	60%	65%
“I am confident that I can gather relevant patient information from an EMR”	78%	69%
“I am confident that I can use the relevant patient information from an EMR to make patient recommendations”	71%	77%

PY3 Qualitative data:

“Looks more similar to what we would see on a patient record in practice”

“Simulates a real-life scenario”

“It contained a lot of information”

“A lot more time spent looking for specific information”

“It was honestly way more useful of a tool than using paper-based cases, as I feel that in practice, pharmacists aren’t generally working from paper”

3.4. Dissemination – Please provide a list of **past** and **upcoming** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project. Be sure to include author names, presentation title, date, and presentation forum (e.g., journal, conference name, event).

- UBC Multidisciplinary Undergraduate Research Conference (MURC) 2021 – Oral presentation
 - “Pharmacy Cases Development for a Simulated Electronic Medical Records Database (PACER) Project”
 - Authors: Jenny He and Katie Bishop
 - Date: March 20, 2021
- TLEF Virtual Showcase – Poster presentation
 - “Pharmacy Cases Development for a Simulated Electronic Medical Records Database (PACER) Project”
 - Authors: Tony Seet, Fong Chan, Aileen Mira, Ali Reza Ladak, Kayla Fang
 - Date: May 17, 2021
- AFPC (Association of Faculties of Pharmacy of Canada)/CPERC Virtual Conference 2021 – Oral presentation as part of “AFPC – UBC Academic Electronic Health Record (aEHR) Project” overview and demonstration.
 - “Academic EHR Pilot at the UBC Faculty of Pharmaceutical Sciences”
 - Author: Tony Seet
 - Date: June 14, 2021



- Manuscript submission to Currents in Pharmacy Teaching and Learning
 - “PACER Project – Pharmacy Cases Development for a Simulated Electronic Medical Records Database”
 - Authors: Tony Seet, Aileen Mira, Jane Xia, Fong Chan, Jason Min, Jillian Reardon, Kayla Fang, Ali Reza Ladak, Jenny He
 - Date: Fall 2021

4. TEACHING PRACTICES – Please indicate if ***your*** teaching practices or those of ***others*** have changed as a result of your project. If so, in what ways. Do you see these changes as sustainable over time? Why or why not?

As a result of the PACER project, we have a new means to present clinical cases to students. Students feel that EMR cases are more realistic compared to paper-based cases. We have also learned that the platform is flexible and may be used for both big and small cases, synchronous and asynchronous sessions, lecture-based and case-based learning teaching sessions, and for group or individual student work. With the added functionality for students to add their own documentation within the platform, students are now able to receive both individual or group feedback.

5. PROJECT SUSTAINMENT – Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?

Assuming that UBC is returning to face-to-face teaching during 2021W, we intend to provide all five clinical cases to our pharmacy students. At the recent AFPC conference, there was an announcement that the academic EHR platform would be made available to all Canadian pharmacy schools along with a case bank where all schools can contribute clinical cases. There is a possibility of expanding our EMR case offerings to our students by using cases created by other Canadian pharmacy schools.